



# Atmospheric Neutrino Model Testing with the AMANDA-II Detector

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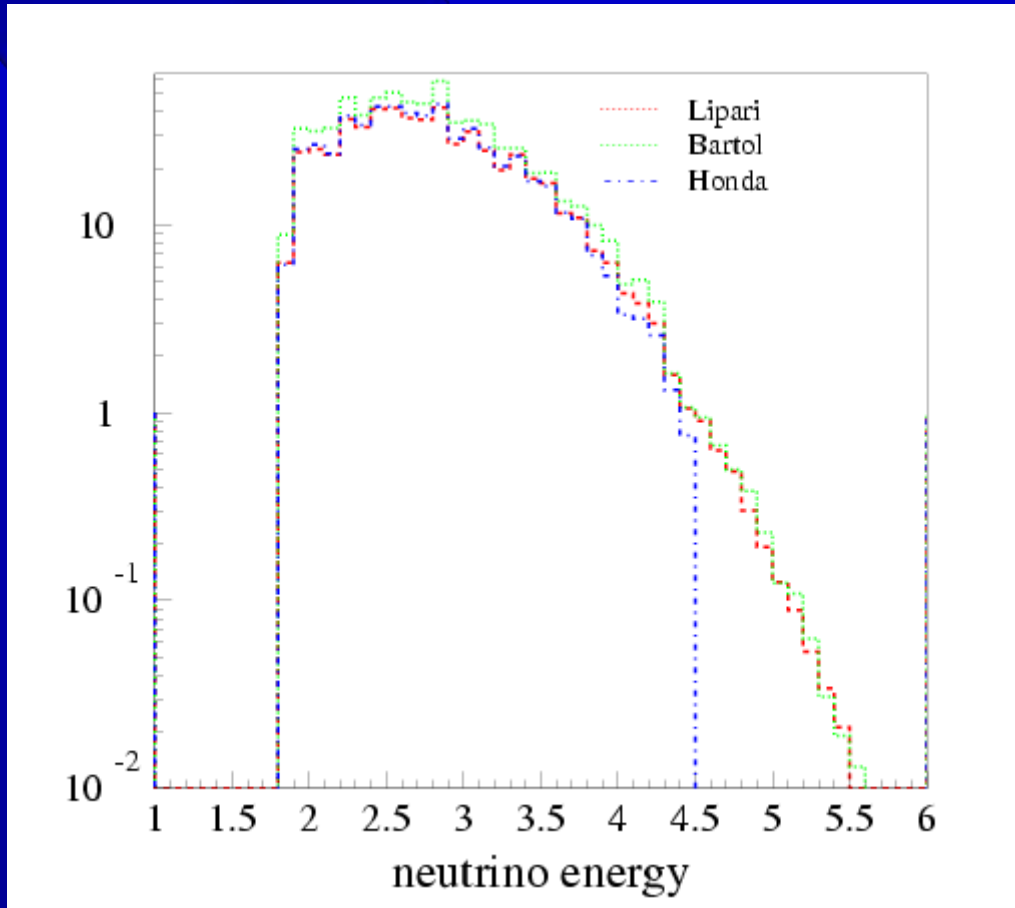
# Motivation

**An excess in events at high energies ( $n_{ch} > 50$ ) has been observed in several analysis (David & Tonio's atmospheric sample, Heiko's unfolded atmospheric spectrum, & Jodi's atmospheric sample.)**

**There are several factors that could contribute to this:**

- 1. We have unsimulated background.**
- 2. We have the wrong Monte Carlo prediction for atmospheric neutrinos.**
- 3. We are seeing some sort of signal.**

# Atmospheric Neutrino Models

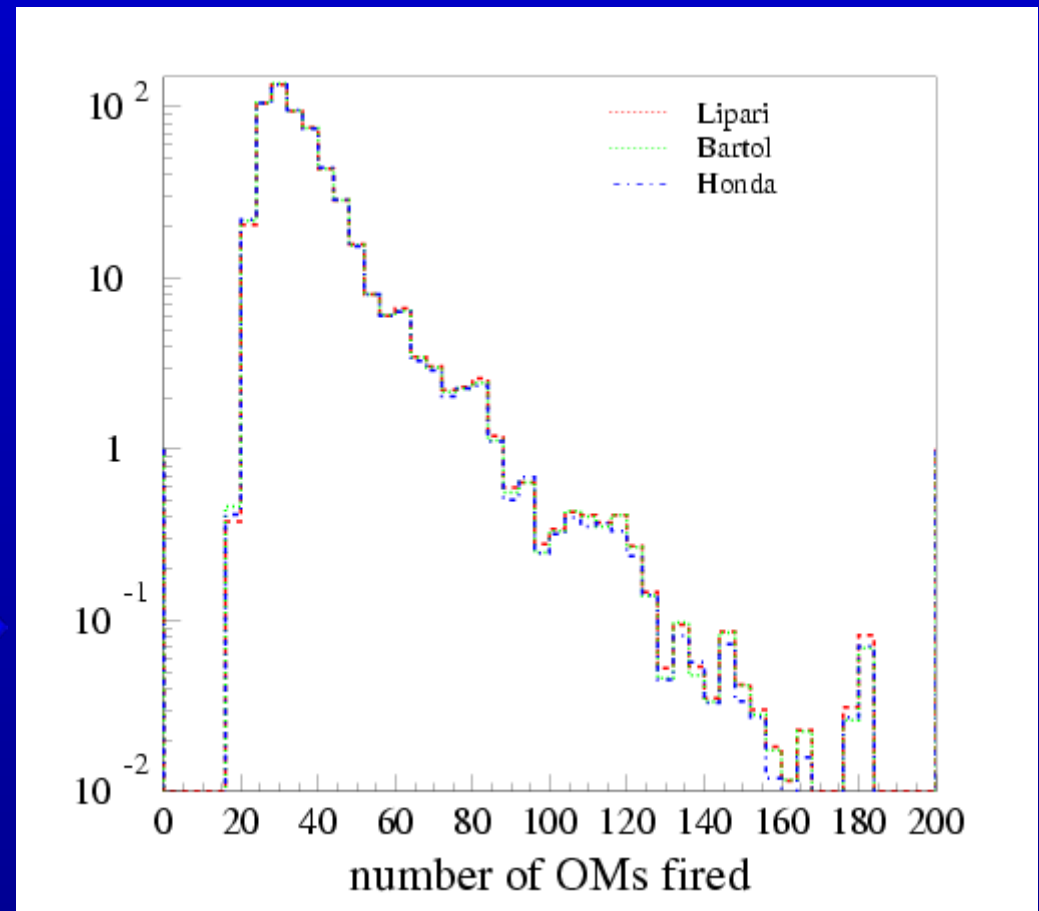


- ◆ **Three atmospheric neutrino models were tested - Lipari, Bartol, and Honda to investigate uncertainty introduced by simulations.**
- ◆ **Model differences:**
  - ◆ **assumed primary spectrum**
  - ◆ **hadronic interaction model**

# Number of Optical Modules Fired

**No observable difference is seen.**

**For comparison purposes a cut has been placed at  $10^4$  GeV and total number of events in each model is normalized to Lipari.**



# Conclusion

**Excess seen at high energies ( $n_{ch} > 50$ ) are not explained by using the Honda or Bartol atmospheric neutrino models.**